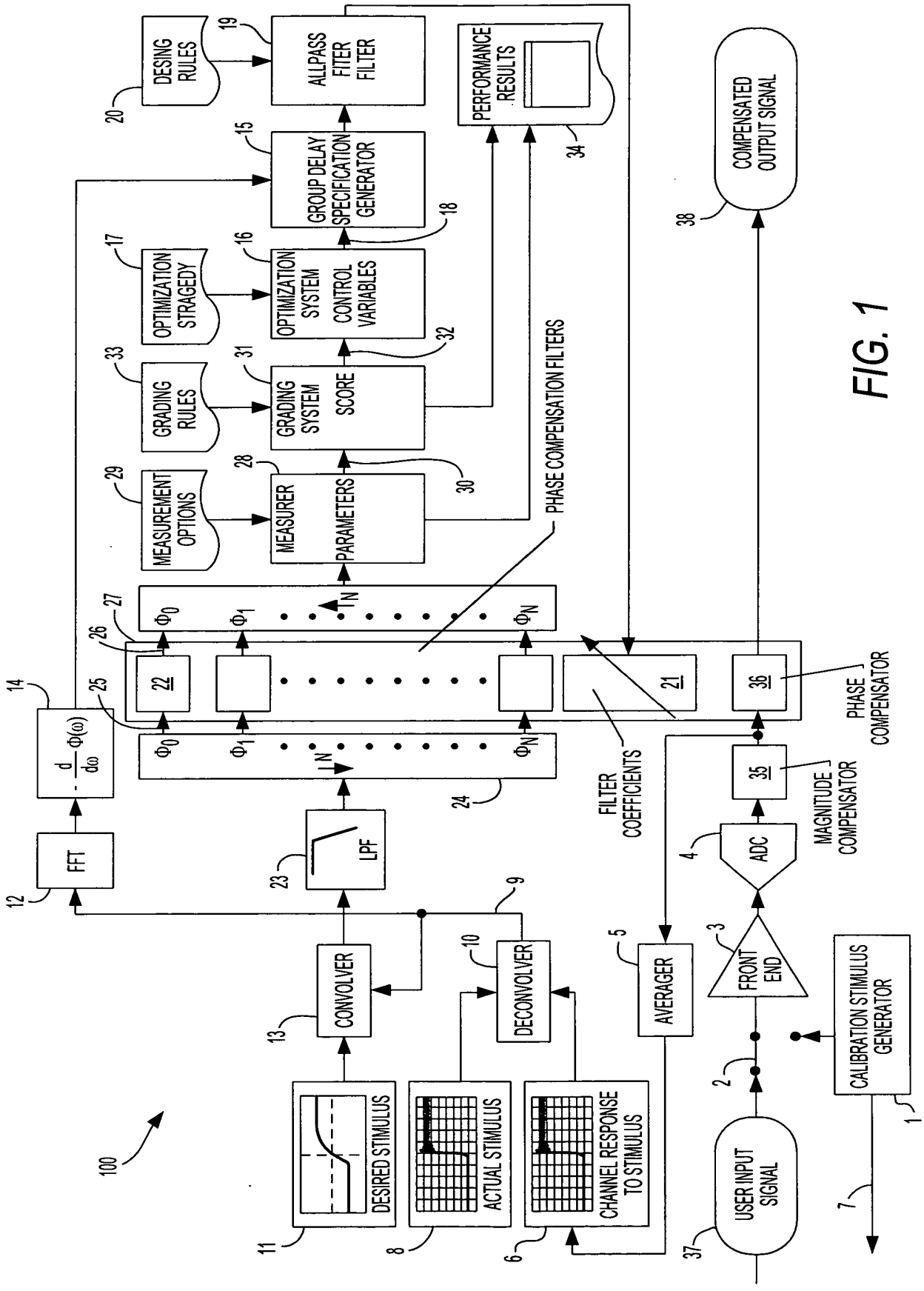


FIG. 1

FIG. 2

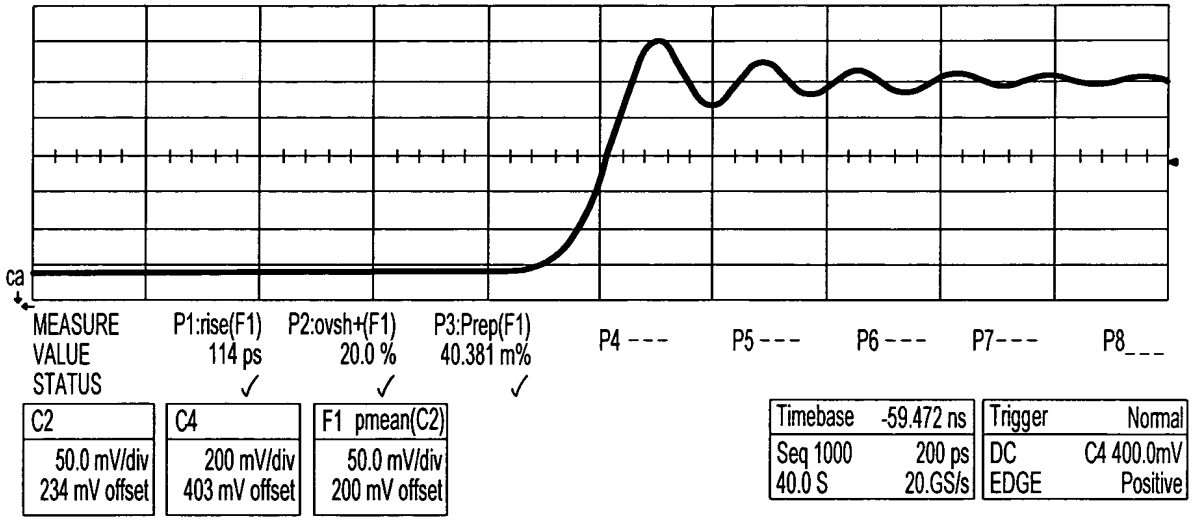


FIG. 3

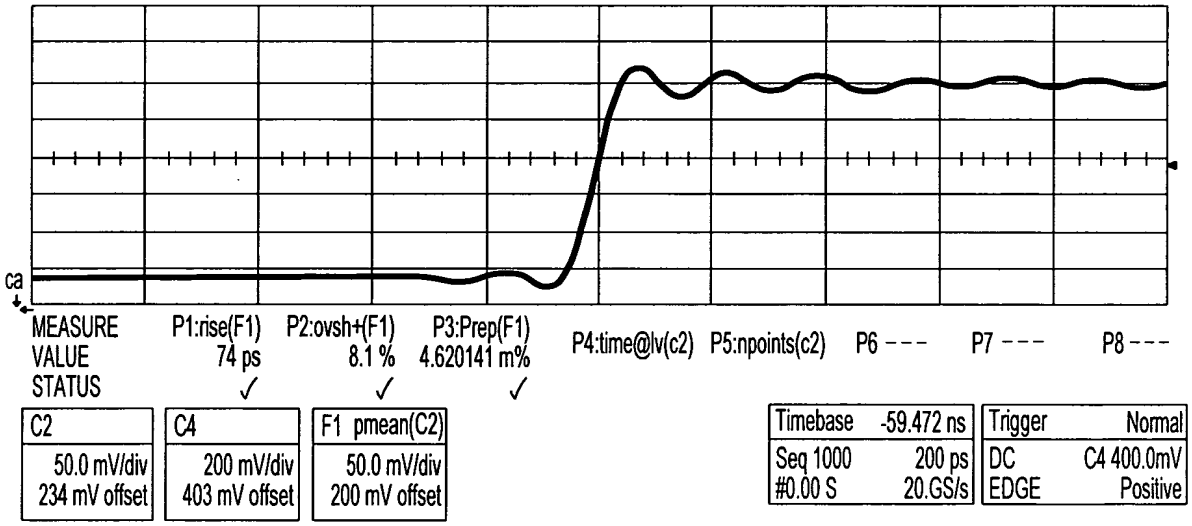


FIG. 4

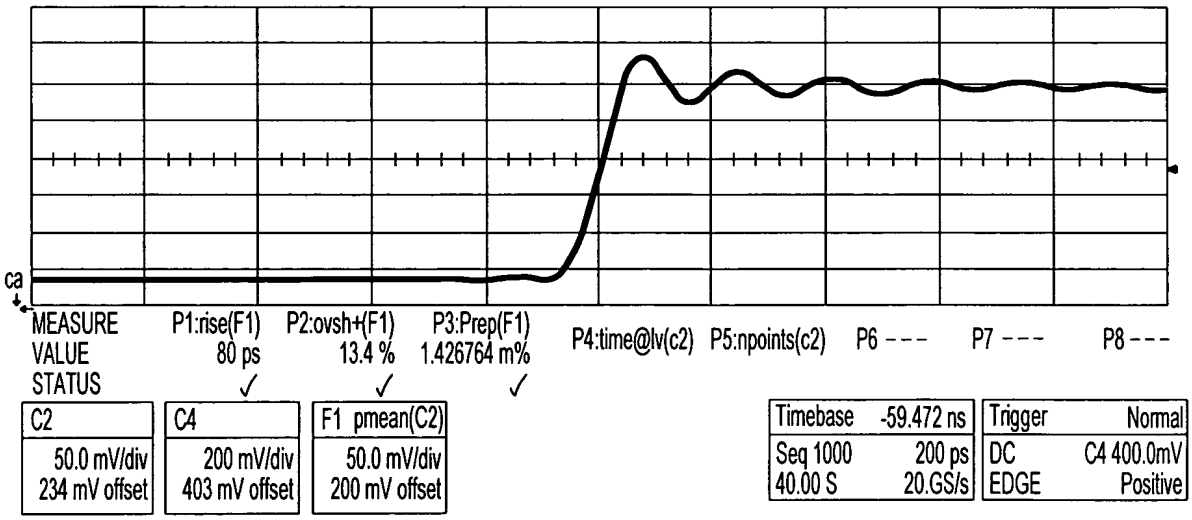
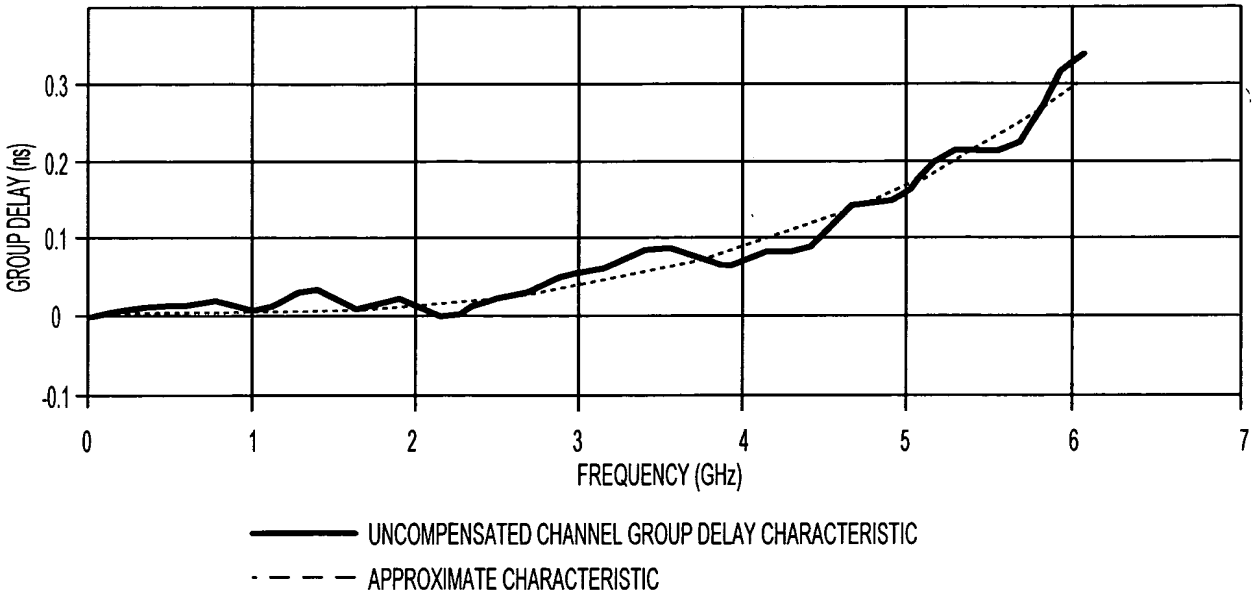


FIG. 5



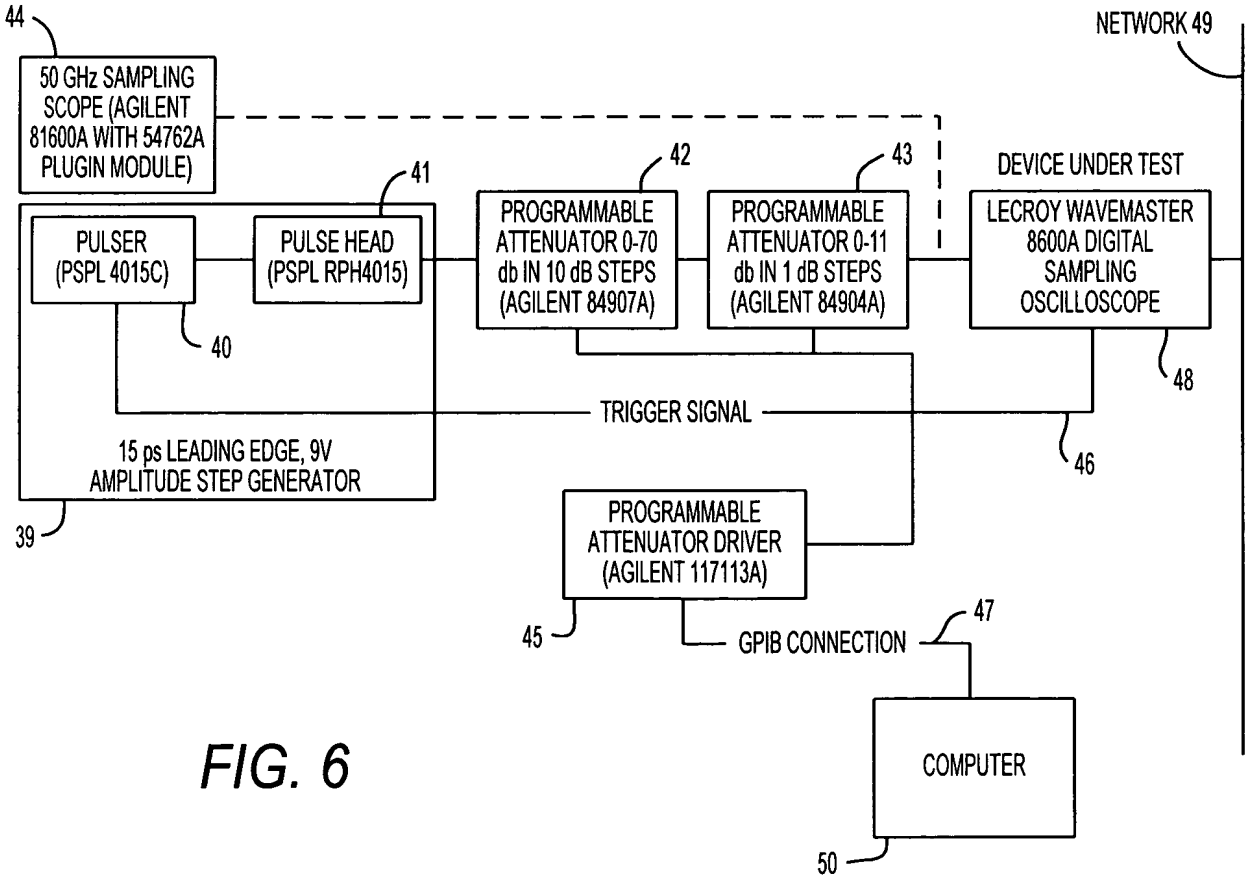


FIG. 6

FIG. 7

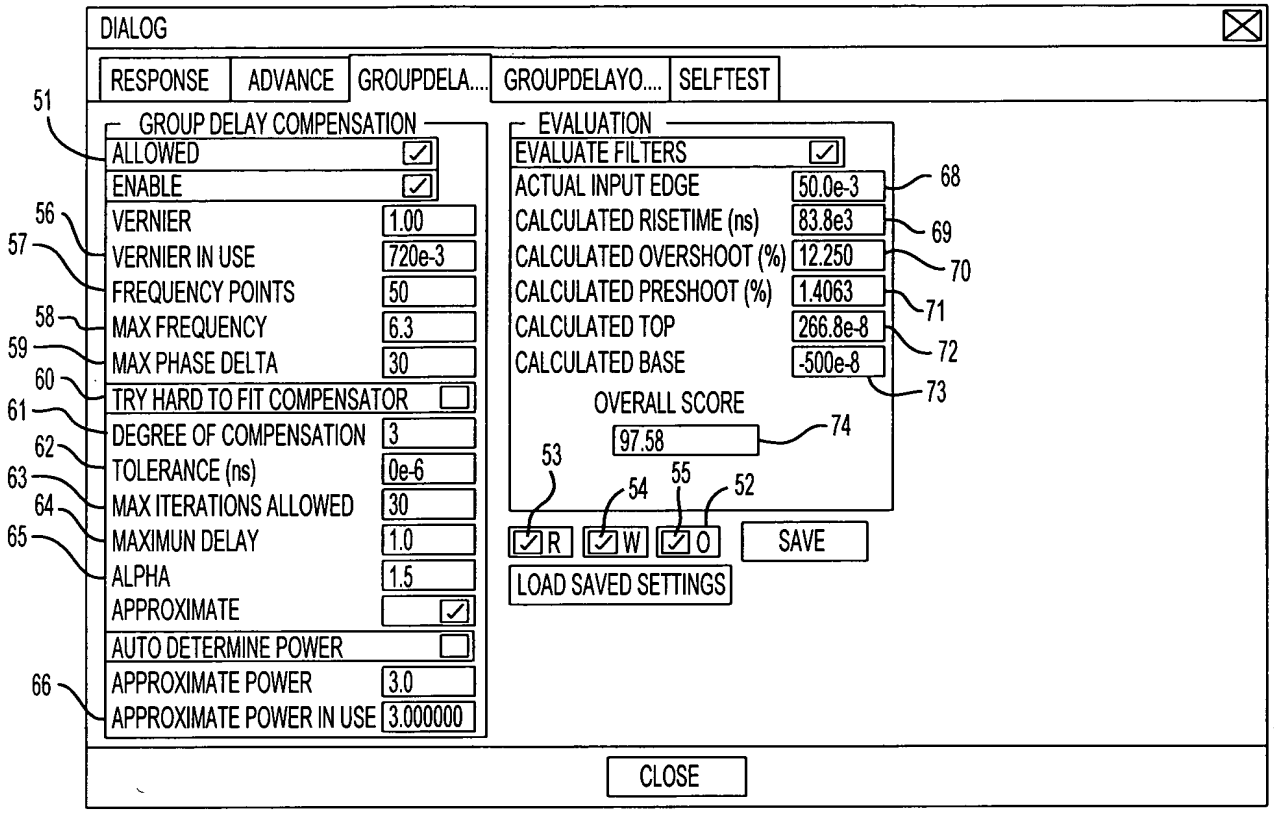
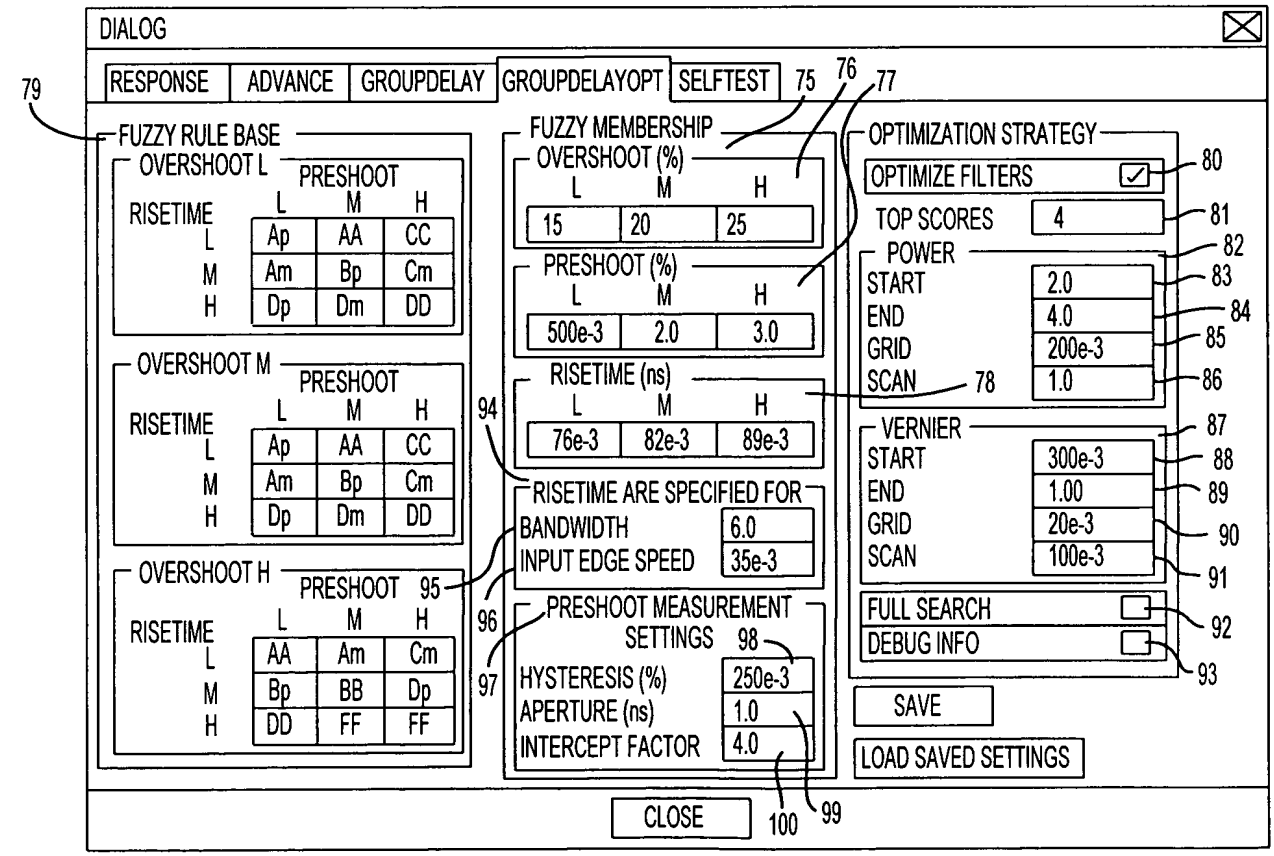


FIG. 8



1	for n=0 ...N	FOR EACH RESPONSE POINT
2	$R_n = GD_{comprel}(f_n, g_{i-1}) + gd_{spec_n}$	CALCULATE A RESIDUAL
3	for j=0 ...2S-1	FOR EACH COEFFICIENT
4	$J_{n,j} = \frac{\sigma}{\sigma (g_{i-1})_j} GD_{comprel}(f_n, g_{i-1})$	CALCULATE AN ELEMENT OF THE JACOBIAN MATRIX
5	$H = J^T \cdot W \cdot J$	CALCULATE THE APROXIMATE HESSIAN MATRIX
6	for j=0 ...S2-1	GENERATE A MATRIX WHOSE DIAGONAL IS IDENTICAL TO THE HESSIAN MATRIX AND IS ZERO ELSWHERE
7	$D_{j,j} = H_{j,j}$	
8	$\Delta P = (H + \lambda \cdot D)^{-1} \cdot J^T \cdot W \cdot R$	CALCULATE THE CHANGE TO THE COEFFICIENT VALUES
9	$g_i = g_{i-1} - \Delta P$	APPLY THE CHANGE TO THE COEFFICIENTS
10	$mse_i = \frac{1}{N+1} \cdot \sum_n (gd_{spec_n} + GD_{comprel}(f_n, g_{i-1}))^2$	CALCULATE THE NEW MEAN SQUARED ERROR
11	true / $mse_i > mse_{i-1}$ / false	DID THE MEAN SQUARED ERROR INCREASE ?
12	$\lambda = \lambda \cdot 10$ FAVOR STEEPEST DECENT / $\lambda = \frac{\lambda}{10}$ FAVOR NETWONGAUSS CONVERGENCE	

FIG. 9

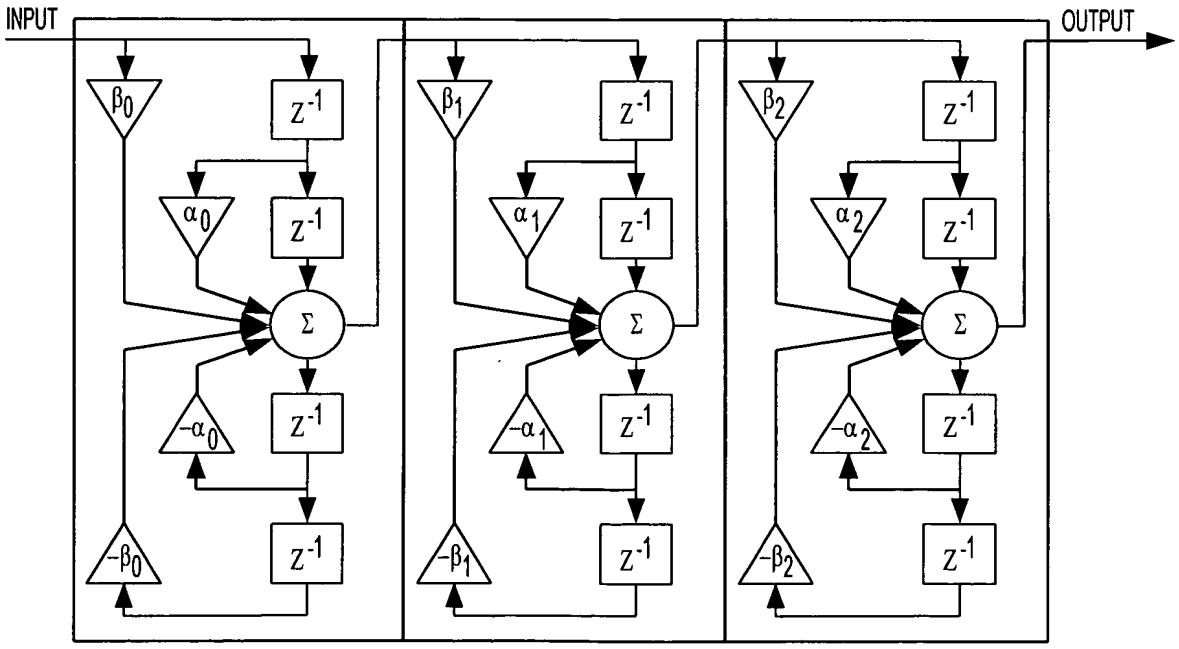


FIG. 10

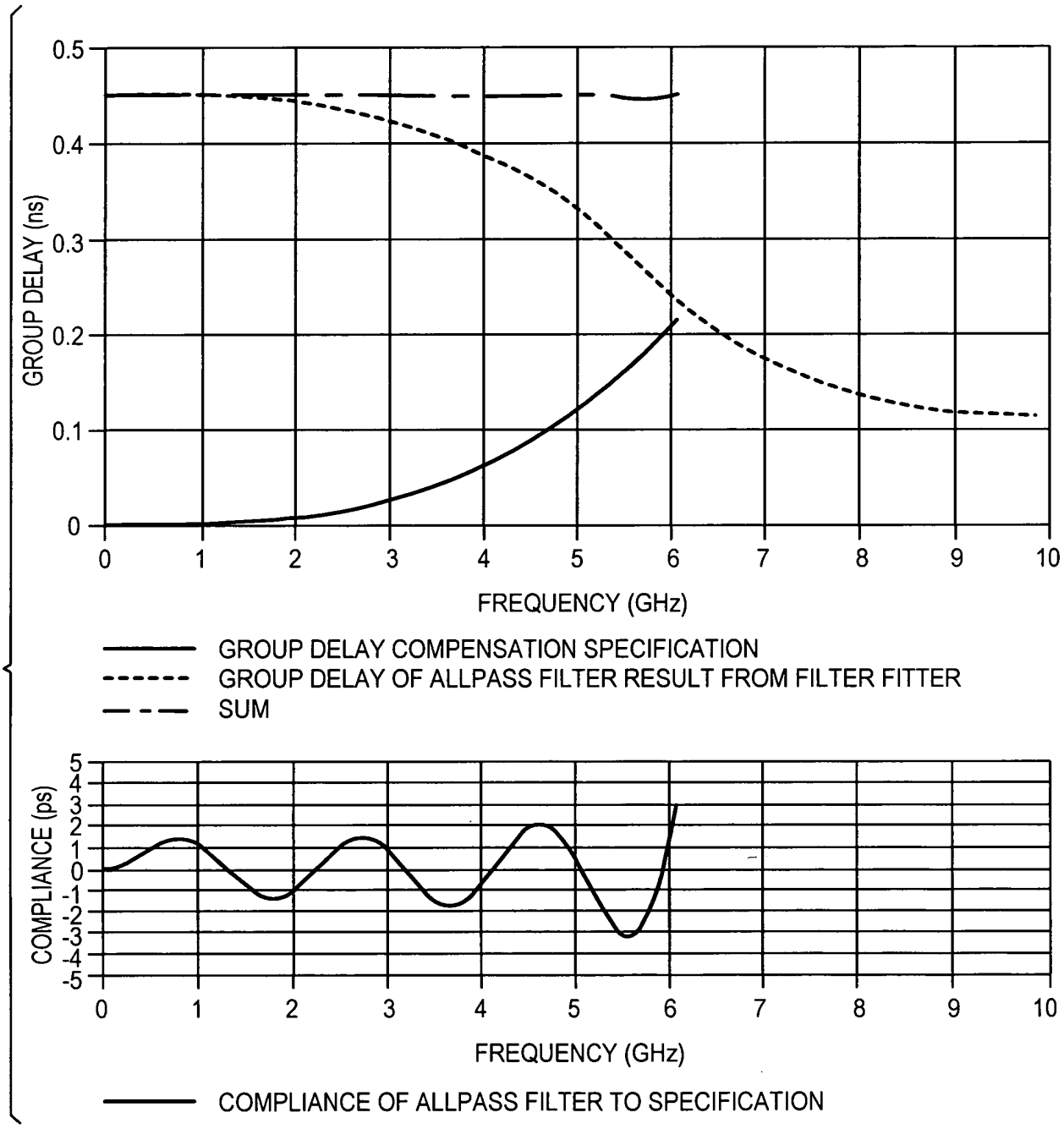


FIG. 11

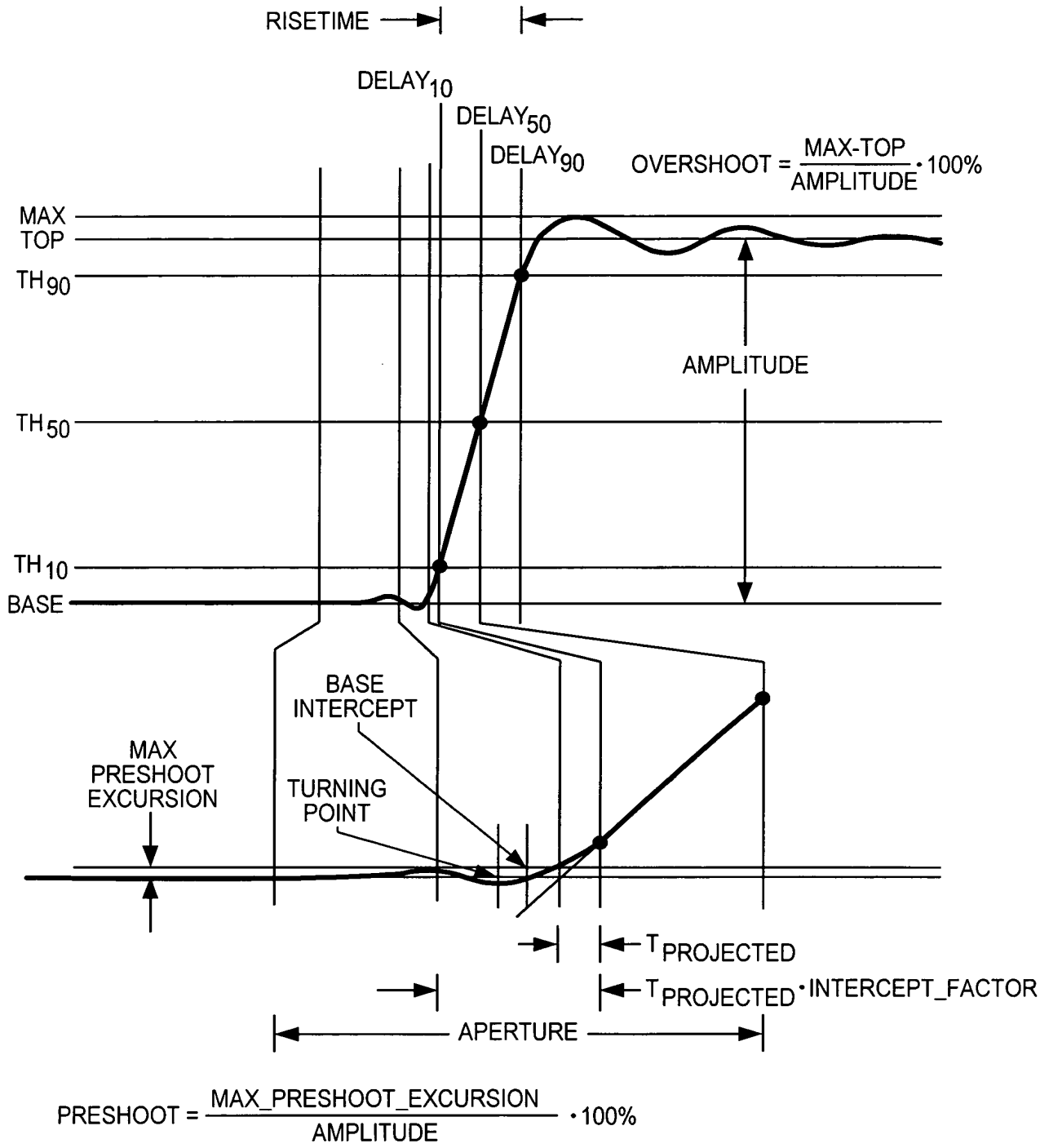


FIG. 12

FIG. 13

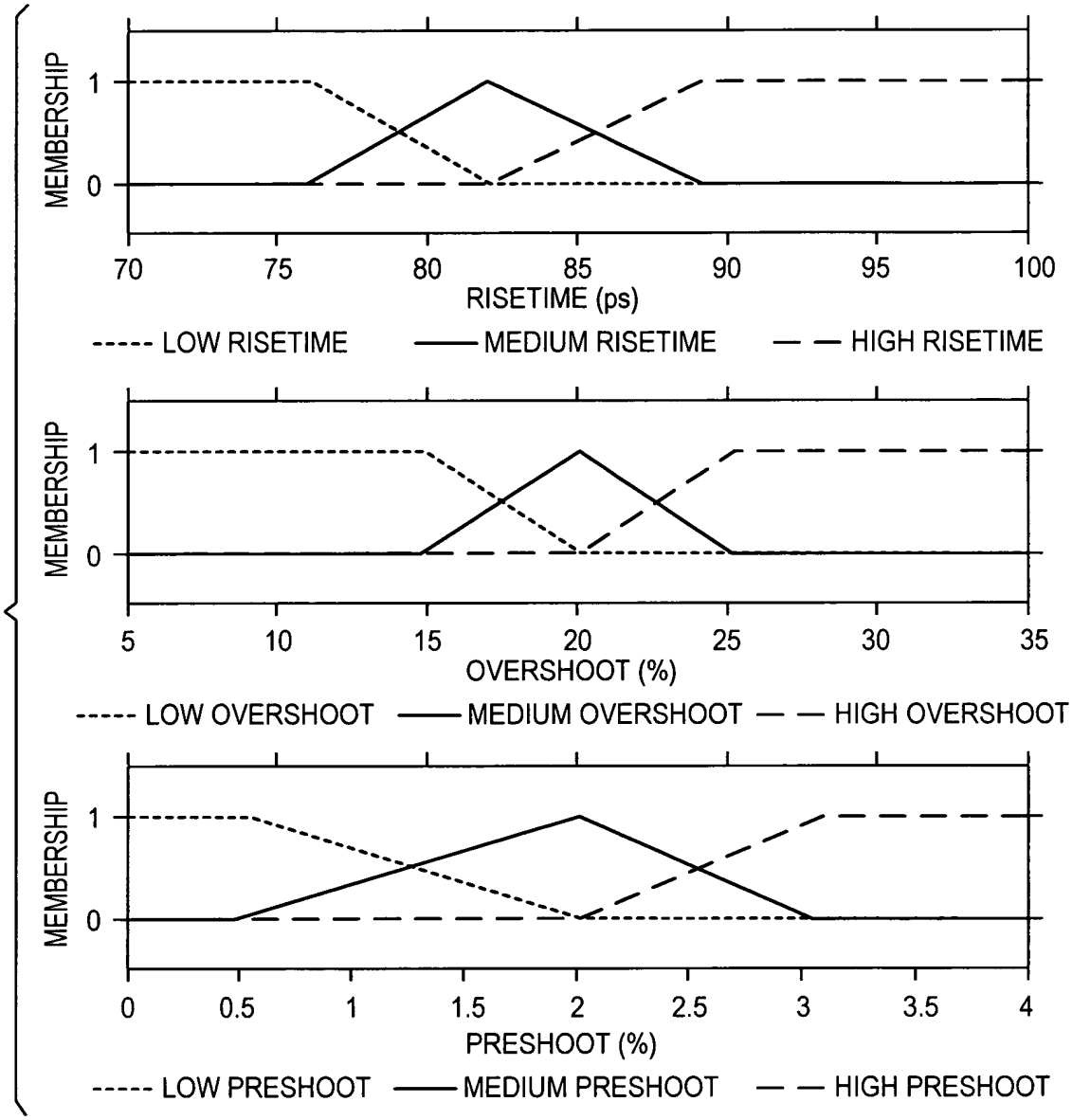
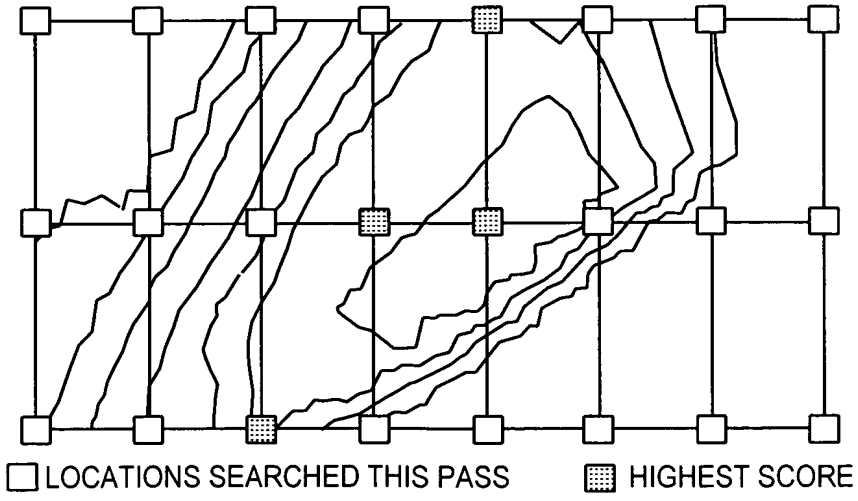


FIG. 14



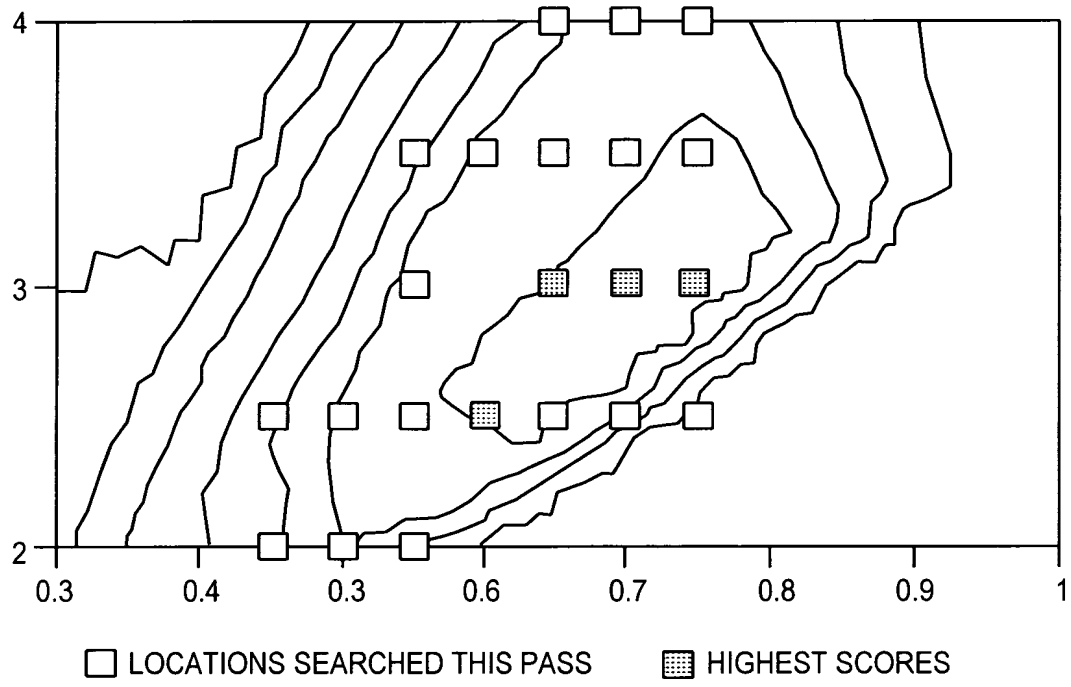


FIG. 15

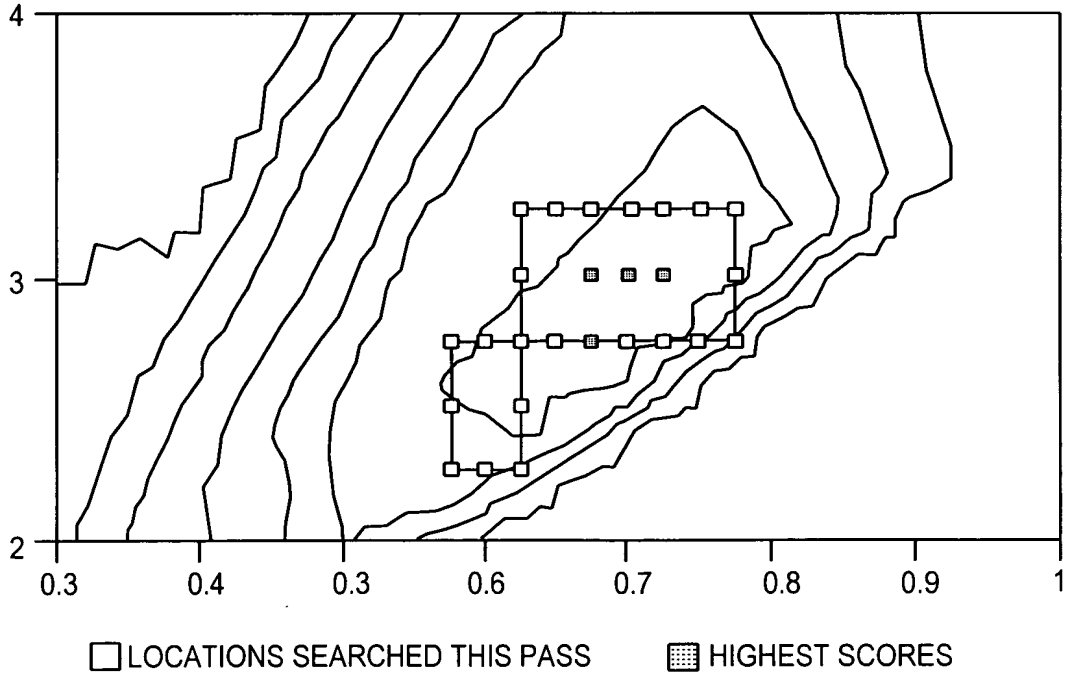


FIG. 16

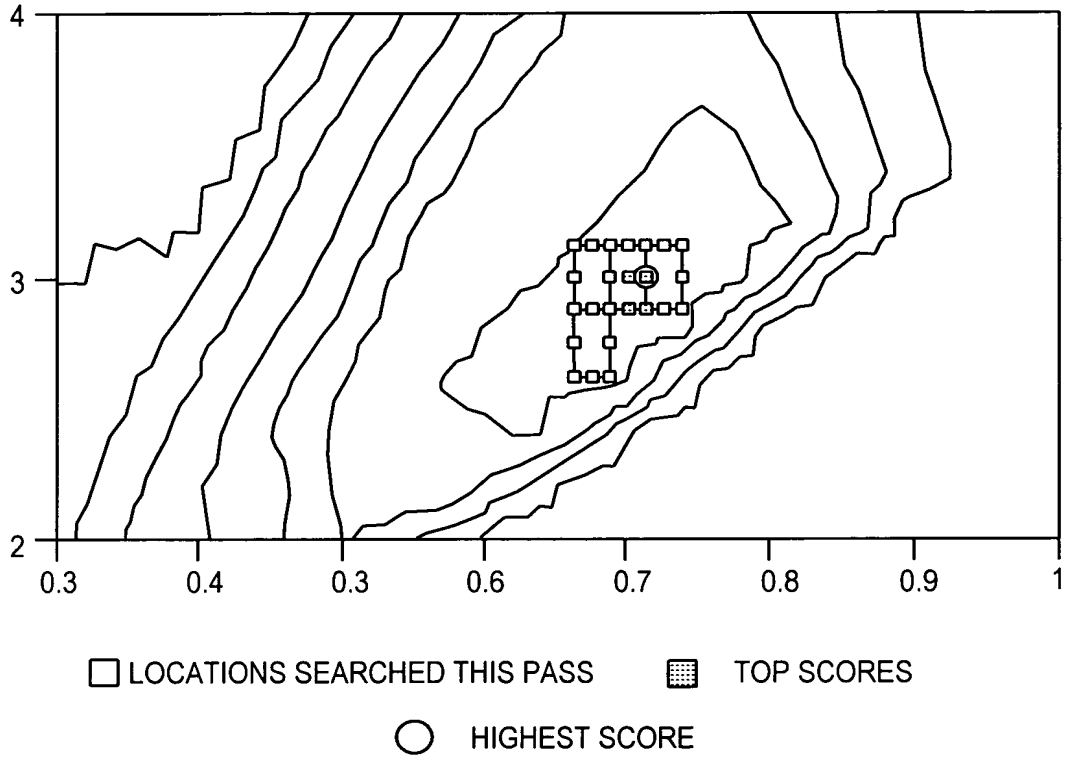


FIG. 17

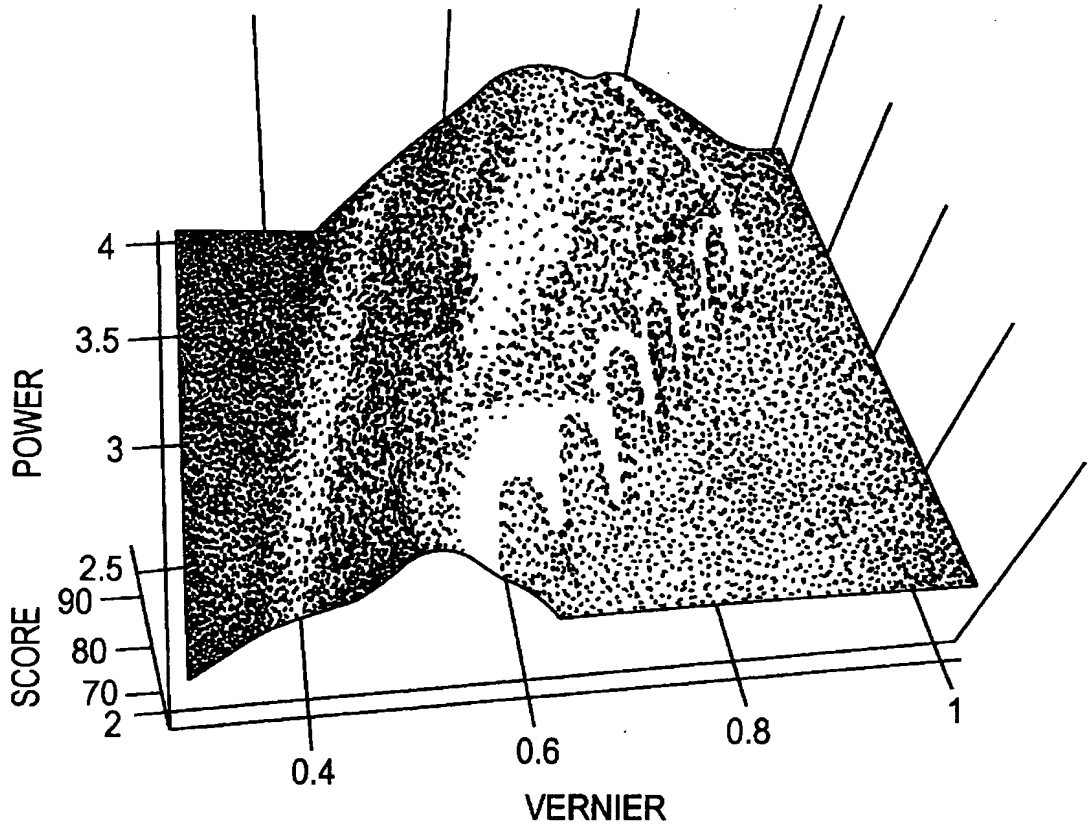


FIG. 18

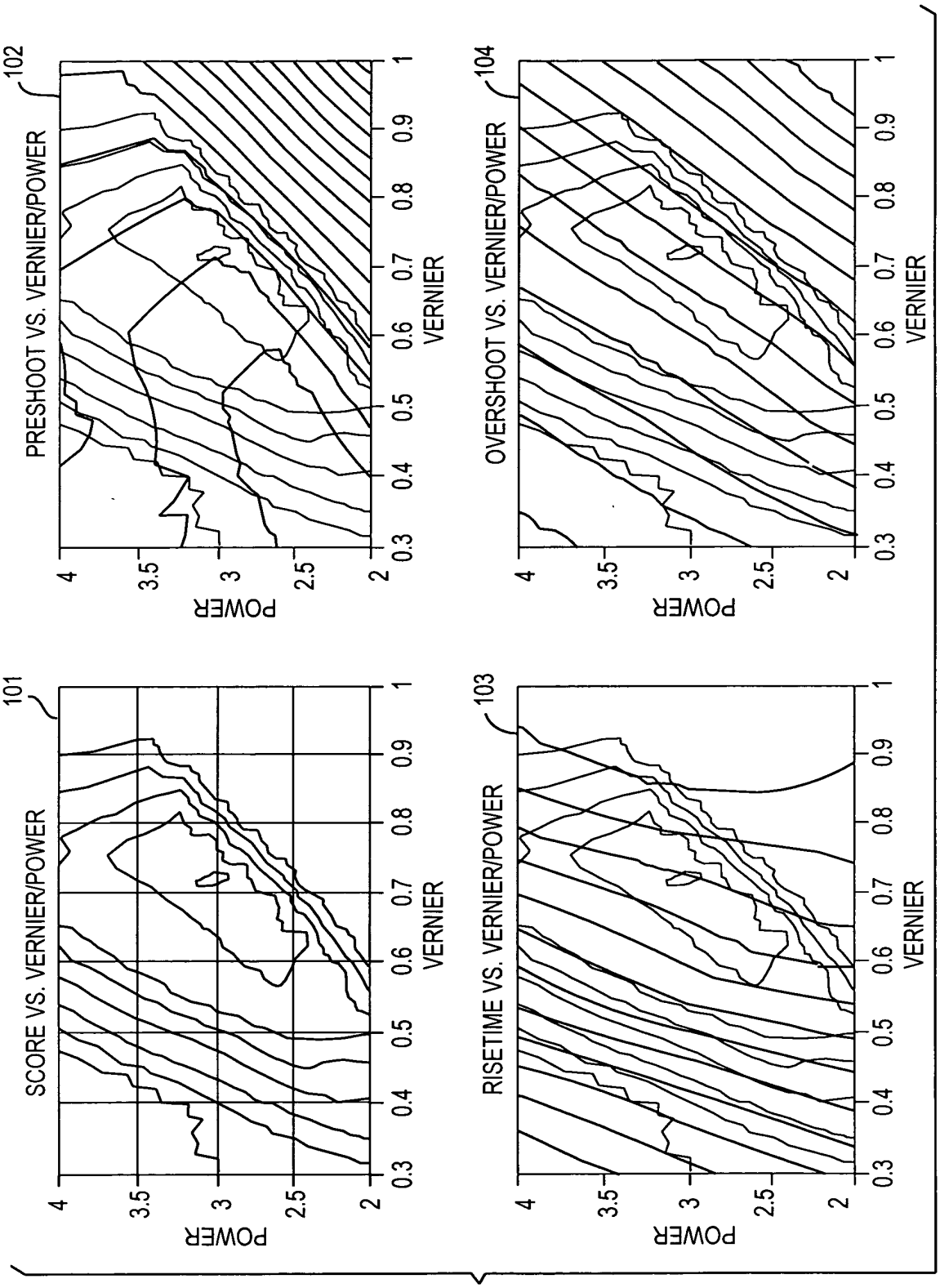


FIG. 19

FIG. 20

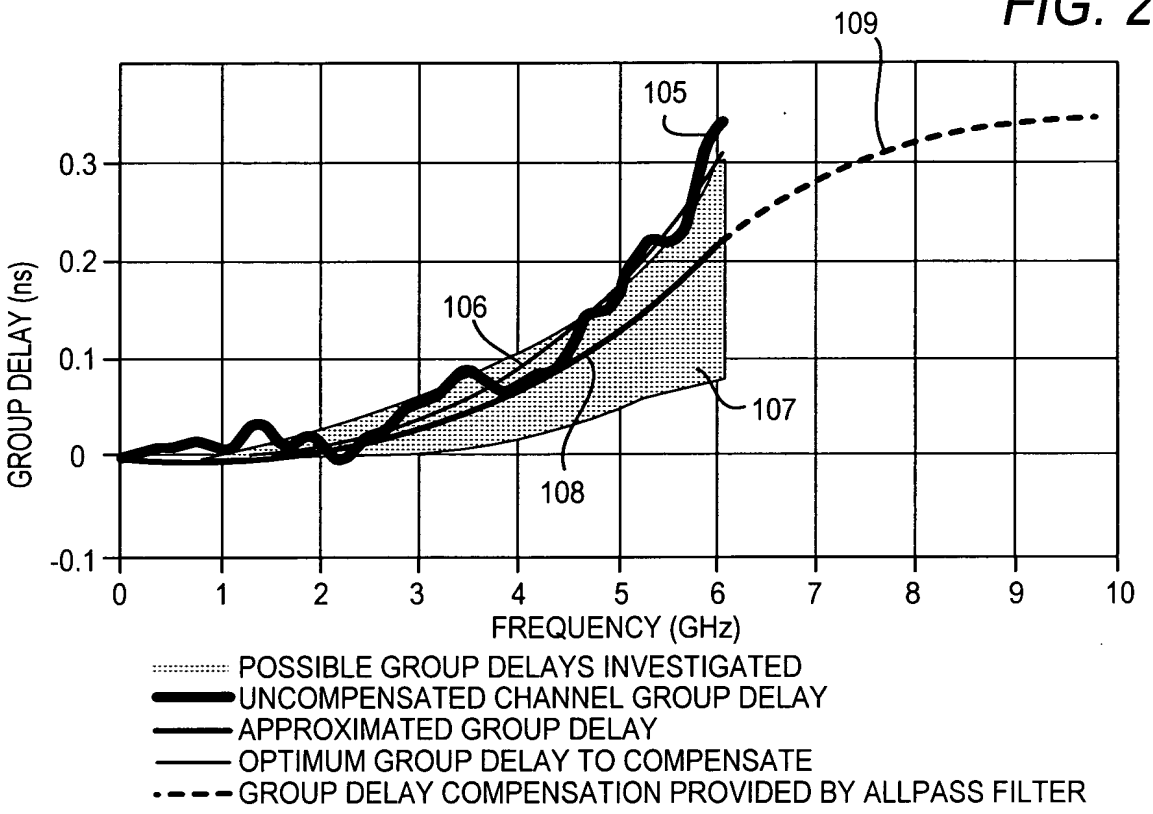


FIG. 21